

Technology Education - Grade 7

For each of the sections that follow, students may be required to analyze, recall, explain, interpret, apply, or evaluate the particular concepts being taught.

DEFINITION OF TECHNOLOGY

- Write the definition of technology
- Use the word technology appropriately

RELATIONSHIP BETWEEN TECHNOLOGY, SCIENCE, AND MATH

- Describe the relationship among math, science, and technology
- Identify career opportunities

THE EVOLUTION OF TECHNOLOGY

- Identify historical events in the evolution of technology
- Describe the exponential growth rate of technology
- Identify possible future developments in technology

IDENTIFYING INVENTION AND INNOVATION

- Describe the difference between an invention and an innovation of an invention
- Identify famous inventors and their inventions

THE IMPACTS OF TECHNOLOGY

- Describe why trade-offs must be made when using technology
- Identify the positive and negative impacts of technology

SYSTEM MODEL

- List the components of the system model
- Graphically apply the system model to a technology learning activity (TLA)

THE THREE SUB-SYSTEMS OF TECHNOLOGY AS DESCRIBED IN THE PENNSYLVANIA STATE STANDARDS FOR SCIENCE AND TECHNOLOGY

- Identify the three sub-systems of technology
- List examples of each sub-system

CLASSROOM/LAB SAFETY

- Identify potentially hazardous conditions and actions in the lab
- Develop a sense of responsibility
- Demonstrate the safe use of applicable tools, machines, and materials
- Demonstrate and practice computer etiquette

PROBLEM-SOLVING MODEL

- Describe the problem-solving model
- Apply the problem-solving model using a sample problem

EXPLORING CONSTRUCTION

- Describe various forms of construction (commercial, civil, and residential)
- List the proper names of applicable tools and materials
- Identify the safe use of applicable tools and materials
- Graphically apply the problem-solving model to a construction problem
- Design, construct, test, and analyze a construction model
- Safely use tools and materials to produce a product
- Practice measurement accuracy to 1/16th inch
- Perform applicable separating, combining, and forming processes

APPLYING CONSTRUCTION SYSTEMS

- List and describe three forms of construction (residential, civil, commercial)
- Differentiate between light and heavy construction
- Identify rigid and non-rigid elements in various structures
- Differentiate between live loads and dead loads
- Describe the importance of calculating loads and forces on structures
- Differentiate between tension and compression forces
- Practice working in a team
- Practice technical drawing skills
- Identify and demonstrate the safe use of applicable tools, machines, and materials
- Construct a model of a superstructure capable of withstanding a mock earthquake
- Calculate the relative strength of a superstructure model through destructive testing
- Calculate the efficiency of a superstructure model
- Practice measurement accuracy to 1/16th inch and 1 millimeter

EXPLORING COMPUTER TECHNOLOGY

- Describe the evolution of the computer
- Describe the difference between hardware and software
- Identify and use various PC components: monitor, keyboard, mouse, CPU, network resources, and color printing
- Practice computer etiquette
- Practice both the Windows 2000 and Mac OSX operating systems

EXPLORING TECHNICAL DRAWING

- Describe the significance of technical drawing
- Describe the difference between artistic drawing and technical drawing
- Describe careers associated with technical drawing
- Identify basic technical drawing tools and their usage
- Describe basic procedures for producing a technical drawing using the basic tools
- Practice measurement, in inches and fractions of an inch, using a scale to an accuracy of 1/16th of an inch
- Produce a basic technical drawing, based upon written criteria
- Discover and develop the skill of constructive imagination
- Practice basic descriptive geometry to produce a technical drawing
- Perform a self-evaluation of a technical drawing following a precise evaluative criteria
- Practice the psychomotor skills necessary to manipulate basic technical drawing tools
- Practice patience while attempting to create a technical drawing
- Practice peer tutoring and peer assessment while creating a basic technical drawing

EXPLORING COMMUNICATION

- Apply the system model to describe communication technology
- Practice Desktop Publishing (DTP) software (QuarkXpress) to produce a full-color document with color, text, and graphics
- Apply the basic computer application tools of QuarkXpress
- Apply a basic understanding of a computer network for accessing home directories and network resources, such as printers and clip-art
- Practice designing while producing a tabloid size, full-color poster type document using QuarkXpress
- Practice peer tutoring and peer assessment while creating a full- color document based, in part, on precise criteria and using QuarkXpress
- Practice basic document archival procedures through lamination

CAREERS

- Discuss careers in the construction industry
- Discuss careers in the energy, power, and transportation industries

ENVIRONMENTAL CONCERNS

- Identify the environmental impacts of construction and energy, power, and transportation systems
- Discuss and list potential positive and negative impacts of construction and energy, power and transportation systems